Exercise Solutions for Math 20

Factoring Polynomials and Simplifying Rational Expressions

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Factor the following completely.

1.1

$16x^4 - 1$

$\Rightarrow (4x^2 - 1)(4x^2 + 1)$	Factor using difference of two squares.
$\Rightarrow (2x - 1)(2x + 1)(4x^2 + 1)$	Factor using difference of two squares. ∎

1.2

$8j^3 - 125k^6$

$\Rightarrow (2j - 5k^2)(4j^2 + 10jk^2 + 25k^4)$	Factor using difference of two cubes. ∎

1.3

$s^2 + 7s + 10$

$\Rightarrow (s + 2)(s + 5)$	Factor by grouping. ∎

1.4

$4n^2 - 12n + 9$

$\Rightarrow 4n^2 - 6n - 6n + 9$	Factor by grouping.
$\Rightarrow 2n(2n - 3) - 3(2n - 3)$	
$\Rightarrow (2n - 3)^2$	∎